NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

December 11, 1997

Project Number 5936-96

Boeing Realty Company
4060 Lakewood Boulevard
Lakewood, California 90808

Attn: Mr. Johnny Marasco

RE: **Observation and Testing of Backfill Operations from Demolition Procedures for Phase I** - Located at the Southwest Corner of 190th Street and Normandie Avenue, in the City of Los Angeles, California

Dear Mr. Marasco:

Pursuant to your request, this firm has observed and tested backfill operations from demolition procedures at the above referenced project. The results of compaction tests are attached and locations of these tests are shown on the accompanying plans. All work was performed in accordance with all present day standards of the Geotechnical Engineering Industry.

Backfill Operations

Several areas including environmental piping trenches were demolished of existing structures and lines and then backfilled with compacted fill soils. Some subsurface structures consisting of concrete slabs and caissons were lift in place in some areas. Any structure left in place was demolished to a minimum of 4 feet below ground surface. Items left in place are shown on the attached plans by Tait & Associates along with the elevation at which the structure lies. Other items of note are:

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CITY OF LOS ANGELES

DEPARTMENT OF BUILDING AND SAFETY

ENGINEER'S CERTIFICATE OF COMPLIANCE FOR COMPACTED EARTH FILLS

JOB/LEGAL ADDRESS:Southwest Corner of 190th St. & Normamdie Ave.

SOIL TESTING AGENCY: NorCal Engineering

PROPERTY OWNER'S: NAME: Boeing Realty Company

OWNER'S ADDRESS: 4060 Lakewood Blvd., Lakewood

PER REPORTS ON OUR PROJECT NUMBER: 5936-96

DATE OF WORK STARTED ON PROJECT: 5/21/97

DATE FILL WAS COMPLETED: 11/10/97

DATE OF THIS CERTIFICATE: 2/5/98

TO THE SUPERINTENDENT OF BUILDING:

I hereby certify that I have personally inspected and tested the placing of compacted earth fill on the above described property, and on the basis of these inspections and tests it is my opinion that the same was placed in conformity with the requirements of the Los Angeles City Building Code.

Keith D. Tucker
R.G.E. 841

REGISTERED PROFESSIONAL ENGINEER
KEITH D. TUCKER
No. 841
Exp. 12/31/00
GEOTECHNICAL
STATE OF CALIFORNIA

*For the purpose of this certificate, to have "personally inspected and tested" shall include inspection and testing performed by any person responsible to the licensed engineer signing this certificate. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the licensed engineer whose signature is affixed thereon.

- The large northerly Excavation A was backfilled to -1 foot of existing grades.
- Pits 2, 4 and Building 36 excavation were also filled to within 1 foot of existing grades.
- Excavation 13 was tested only at 3.0-3.5 feet below existing surrounding grades.
- Maximum depth of fill placed in environmental trenches was 3 feet.
- Abandonment in-place of caissons and slabs was performed with the approval of City of Los Angeles Grading Department officials.

The maximum depth of fill placed during backfill operations was approximately 12 feet. Fill soils were compacted to a minimum of 90% of the laboratory standard in lifts not in excess of eight inches in thickness. Rubber tire and track-mounted grading equipment was used for compaction control; a water truck provided moisture control. The approximate limits of compacted fill are shown on the attached plans.

Laboratory/Field Testing

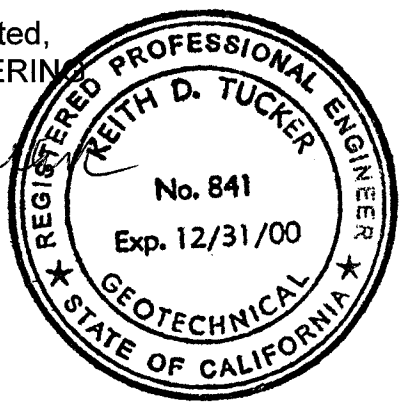
The relative compaction was determined by Sand Cone Method (ASTM: D1556-82) and by the Drive Tube Method (ASTM: D2937). The maximum density of the fill soils was obtained by the laboratory standard (ASTM: D1557-82) and results are shown on Table I. Tests were performed a minimum of every 500 cubic yards placed and every two feet in depth of fill placed. Results of field density tests are presented in Table II. No chemical analysis was performed by NorCal Engineering on the tank excavation nor the backfill soils.

Conclusions

The geotechnical engineering aspects of the backfill operations have been observed and are in compliance with the geotechnical engineer's recommendations. Additional subsurface investigation and laboratory testing will be necessary in fill areas which will support new structures. The backfill meets secondary fill requirements for support of pavement and floor slab.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING



Keith D. Tucker
Project Engineer
R.G.E. 841

Mark Burkholder
Project Manager

TABLE I
MAXIMUM DENSITY TESTS
(ASTM: D1557-78)

Sample	Classification	Optimum Moisture	Maximum Dry Density (lbs./cu.ft.)
I	Silty clay	14.0	110.0
II	Silty clay	13.0	112.0
III	Clayey silt	12.0	121.0
IV	SAND, fine to medium grained, silt with slight clay with gravel	10.0	128.0
V	Crushed Miscellaneous Base	7.5	138.0
VI	Silty clay	12.0	120.0
VII	Silty clay with gravel and brick	13.5	130.0
VIII	Clayey silt with gravel	12.5	125.0

TABLE II
COMPACTION TEST RESULTS

Date of Test	Test No.	*Depth	Percent Moisture	Unit Wt. lbs./cu.ft.	Relative Compaction	Soil Type
5/21/97	101	8.0-8.5	18.5	102.9	93	I
5/21/97	102	8.0-8.5	13.9	108.8	98	I
5/21/97	103	6.0-6.5	13.4	118.2	97	III
5/21/97	104	6.0-6.5	10.2	114.3	94	III
5/21/97	105	6.0-6.5	14.0	120.2	99	III
5/22/97	106	5.0-5.5	9.8	119.3	98	III
5/22/97	107	5.0-5.5	13.0	116.1	95	III
5/22/97	108	5.0-5.5	13.3	114.7	95	III
5/22/97	109	5.0-5.5	13.6	112.7	93	III
5/22/97	110	4.0-4.5	14.4	116.3	96	III
5/22/97	111	4.0-4.5	16.3	116.9	96	III
5/22/97	112	4.0-4.5	15.4	116.1	95	III
5/22/97	113	4.0-4.5	11.3	118.0	97	III
5/22/97	114	3.0-3.5	13.2	115.9	95	III
5/23/97	115	3.0-3.5	12.2	118.5	97	III
5/23/97	116	3.0-3.5	12.8	118.8	97	III

*Depth below finish grade (in feet)

**Retest of failing tests after area reworked

TABLE II
COMPACTION TEST RESULTS

Date of Test	Test No.	*Depth	Percent Moisture	Unit Wt. lbs./cu.ft.	Relative Compaction	Soil Type
5/23/97	117	3.0-3.5	13.4	120.8	99	III
5/23/97	118	3.0-3.5	13.1	115.8	95	III
5/27/97	119	2.0-2.5	13.4	118.2	97	III
5/27/97	120	2.0-2.5	13.1	114.9	94	III
5/28/97	121	3.0-3.5	13.8	118.6	98	III
5/28/97	122	2.0-2.5	12.1	111.5	92	III
5/29/97	123	4.0-4.5	13.7	117.9	97	III
5/30/97	124	3.0-3.5	12.6	119.4	98	III
5/30/97	125	1.0-1.5	13.2	113.1	93	III
5/30/97	126	1.0-1.5	12.9	116.9	96	III
5/30/97	127	1.0-1.5	13.0	115.0	95	III
5/30/97	128	1.0-1.5	13.0	115.9	96	III
5/30/97	129	3.0-3.5	14.0	114.9	94	III
6/25/97	130	3.0-3.5	15.5	115.0	95	III
6/25/97	131	3.0-3.5	14.2	115.5	95	III
6/25/97	132	3.0-3.5	11.0	113.5	93	III

*Depth below finish grade (in feet)

**Retest of failing tests after area reworked

COMPACTION TEST RESULTS

Date of Test	Test No.	*Depth	Percent Moisture	Unit Wt. lbs./cu.ft.	Relative Compaction	Soil Type
6/27/97	133	3.0-3.5	10.2	114.3	94	III
6/27/97	134	1.0-1.5	13.5	121.3	95	IV
6/27/97	135	0.0-0.5	11.1	124.8	97	IV
6/27/97	136	1.0-1.5	12.3	117.8	92	IV
6/27/97	137	0.0-0.5	12.1	121.3	95	IV
6/30/97	138	0.0-0.5	11.0	112.6	93	III
6/30/97	139	1.0-1.5	14.0	113.1	93	III
6/30/97	140	1.0-1.5	11.4	115.2	95	III
6/30/97	141	0.0-0.5	12.1	111.5	92	III
6/30/97	142	0.0-0.5	10.2	109.8	90	III
7/31/97	143	Test not a part of current backfill operations				
8/1/97	144	Test not a part of current backfill operations				
8/1/97	145	Test not a part of current backfill operations				
9/17/97	146	10.0-10.5	14.1	113.1	94	VI
9/17/97	147	12.0-12.5	13.5	111.0	93	VI
9/17/97	148	7.5-8.0	12.2	111.4	93	VI

*Depth below finish grade (in feet)

**Retest of failing tests after area reworked

TABLE II

NorCal Engineering

TABLE II
COMPACTION TEST RESULTS

Date of Test	Test No.	*Depth	Percent Moisture	Unit Wt. lbs./cu.ft.	Relative Compaction	Soil Type
9/18/97	149	8.0-8.5	13.8	117.9	91	VII
9/18/97	150	11.0-11.5	12.7	115.3	92	VIII
9/18/97	151	10.0-10.5	13.8	116.9	90	VII
9/19/97	152	9.0-9.5	12.9	114.1	91	VIII
9/19/97	153	7.5-8.0	13.1	116.4	93	VIII
9/19/97	154	8.0-8.5	14.2	119.4	92	VII
9/22/97	155	6.0-6.5	11.1	116.7	90	VII
9/22/97	156	5.0-5.5	10.8	117.1	90	VII
9/22/97	157	5.5-6.0	8.6	118.8	91	VII
9/23/97	158	4.0-4.5	11.2	120.5	93	VII
9/23/97	159	3.0-3.5	8.9	120.3	93	VII
9/23/97	160	3.5-4.0	12.6	117.3	90	VII
9/23/97	161	4.5-5.0	12.8	115.2	92	VIII
9/24/97	162	3.0-3.0	9.6	118.6	91	VII
9/24/97	163	3.5-4.0	12.5	118.8	91	VII
9/24/97	164	2.5-3.0	12.9	116.5	93	VIII

*Depth below finish grade (in feet)

**Retest of failing tests after area reworked

TABLE II
COMPACTION TEST RESULTS

Date of Test	Test No.	*Depth	Percent Moisture	Unit Wt. lbs./cu.ft.	Relative Compaction	Soil Type
9/24/97	165	2.0-2.5	12.3	115.3	92	VIII
9/24/97	166	1.5-2.0	11.8	116.5	93	VIII
9/25/97	167	2.0-2.5	10.5	123.1	95	VII
9/25/97	168	1.0-1.5	11.4	114.8	92	VIII
9/25/97	169	1.0-1.5	11.2	120.5	93	VII
9/29/97	170	1.5-2.0	13.8	120.4	93	VII
9/29/97	171	0.0-0.5	12.4	117.4	90	VII
9/29/97	172	0.0-0.5	10.7	117.5	90	VII
9/29/97	173	0.0-0.5	13.6	120.1	92	VII
11/5/97	174	12.0-12.5	14.6	106.5	95	II
11/5/97	175	10.0-10.5	13.2	117.4	94	VIII
11/5/97	176	9.0-9.5	12.9	119.6	92	VII
11/5/97	177	8.0-8.5	13.8	116.9	93	VIII
11/6/97	178	6.0-6.5	11.5	121.1	97	VIII
11/6/97	179	4.5-5.0	14.1	113.0	93	VIII
11/7/97	180	3.0-3.5	12.4	116.5	96	VIII
11/10/97	181	1.0-1.5	10.9	119.0	95	VIII

*Depth below finish grade (in feet)

**Retest of failing tests after area reworked

W. 190TH STREET

DENKER AVENUE
(ALL A1/AB REMOVED)

NORMANDIE AVE

CONSTRUCTION GATE

LIMIT OF BUILDING REMOVAL W/ CASSONS LEFT IN PLACE 4.0' BELOW GRADE AT ELEVATION 46.0'±

LIMITS OF ORIGINAL EXCAVATION BACKFILLED TO NATURAL GRADE

PIT 9 · PIT 10 · PIT 8 · PIT 7 · PIT 11 · PIT 6 · PIT 5 · PIT 12

TRENCH BACKFILL AREA

NOTE: GRADE BEAMS AND FOOTINGS REMOVED TYPICAL DEPTH 2' BELOW GRADE TO BOTTOMS OF FOOTING (B.O.F.) TO ELEVATION 48' (APPROX.)

EXCAVATION 13

LIMIT OF BUILDING REMOVAL W/ CASSONS LEFT IN PLACE 4.0' BELOW GRADE AT ELEVATION 46.0'±

PIT 3 · PIT 4 · PIT 1 · PIT 2

STR. FOUNDATION REMOVED BOT DOWN 2.0'±

LIMITS OF COMPACTED FILL

LIMIT LINE (TYP.)

CONCRETE FOOTING LEFT IN PLACE APPROX. 20' SQ. APPROX. 8' DEEP

CHIMNEY REMOVED

BUILDING REMOVED MAX. EXCAVATION 2.0'

EXISTING STRUCTURE TO REMAIN (TYP.)

TANK REMOVED

BLDG #44 REMOVED

35' BASEMENTS

RAILROAD ROW

CENTERLINE NORMANDIE AVENUE

SCALE: 1" = 40'

SEE SHEET 2 OF 2 FOR
LIMITS OF DEMOLITION, DETAILS & LEGEND

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS
BOEING REALTY
PROJECT 5889-88 | DATE DEC. 1997

LOCATION OF COMPACTION TESTS

NO	DESCRIPTION REVISIONS	BY	DATE	CHK

TAIT & ASSOCIATES INC.
1100 TOWN & COUNTRY ROAD
SUITE 1200
P.O. Box 4429
Orange, California 92668
(714) 560-9200
(714) 560-8211 FAX

TITLE: AS-BUILT DEMOLITION PLAN
MCDONNELL DOUGLAS REALTY CO.
4060 LAKEWOOD BLVD., 6TH FLOOR
LONG BEACH, CALIFORNIA 90808
PROJECT: HARBOR GATEWAY
HARBOR GATEWAY
LOS ANGELES, CA

DRAWN: R.W.K.
DATE: 10/21/97
CHECKED:
DATE:
REVISION # 1
DATE:
JOB NO SP32898

1 OF 2

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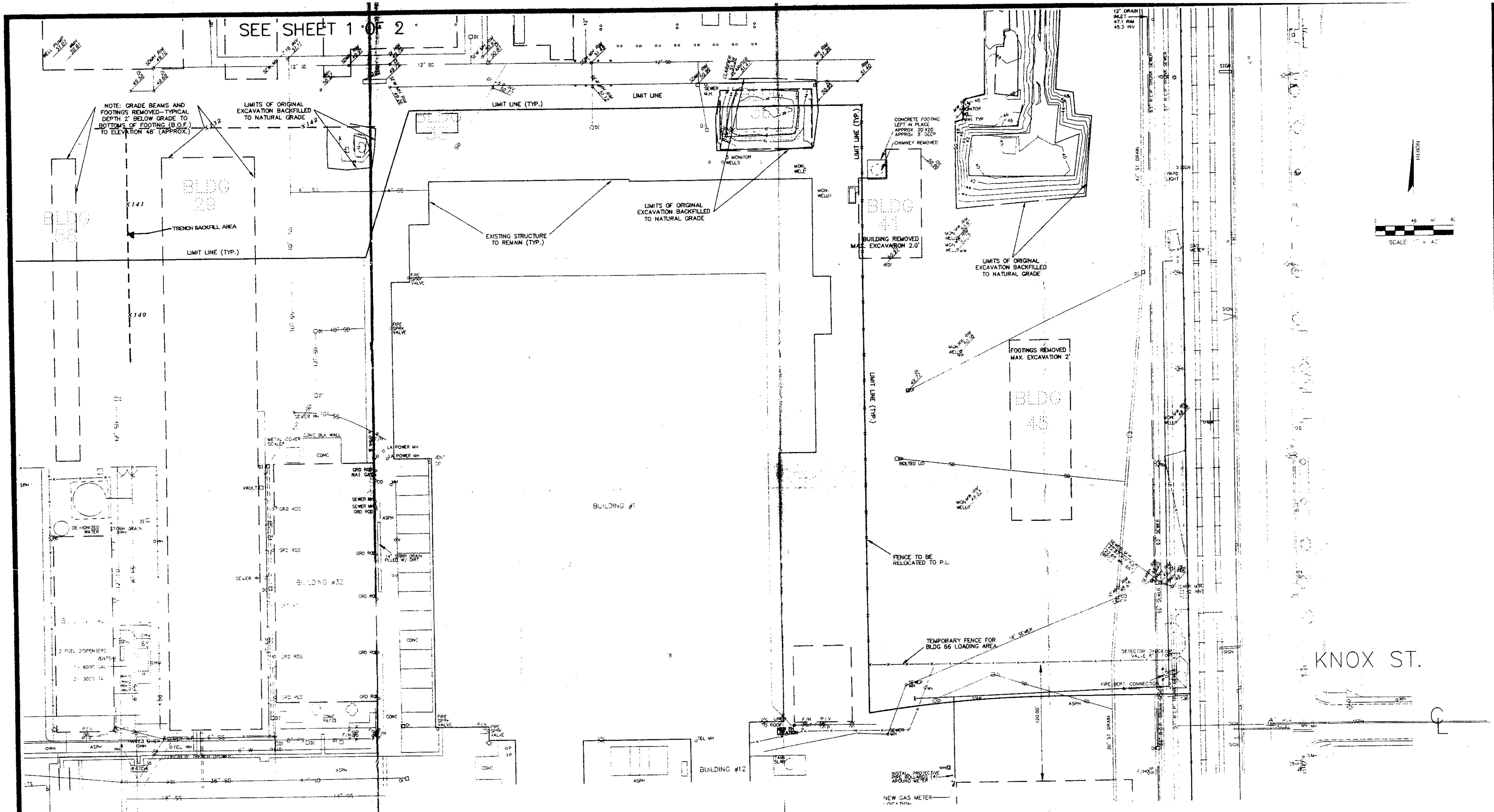
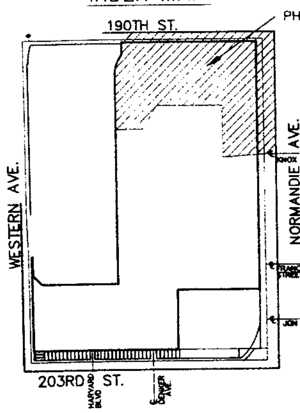
BOE-06-0100633



INDEX MAP



IMPORTANT NOTICE

Section 4216/4217 of the Government Code requires a Dig Alert Identification Number be issued before a Permit to Excavate will be valid. For your Dig Alert ID Number Call

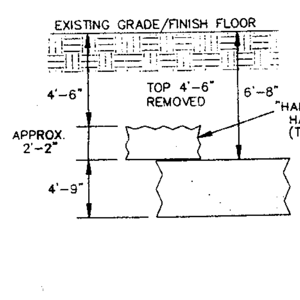
UNDERGROUND SERVICE ALERT

1-800-422-4133

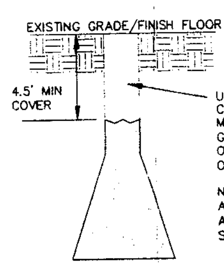
For Underground Locating
2 Working Days before You Dig

Engineers Note to Contractor:

The existence and location of any underground utilities, pipes, and/or structures shown on these plans were obtained by a search of available records. To the best of our knowledge, there are no existing utilities except as shown on these plans. The contractor shall ascertain the true vertical and horizontal location of those underground utilities to be used and shall be responsible for any damage to any public or private utilities, shown or not shown hereon.



PIT DETAIL
N.T.S.



CAISSON DETAIL
N.T.S.

TYPICAL FOUNDATIONS REMAINING

NorCal Engineering SOILS AND GEOTECHNICAL CONSULTANTS		LOCATION OF COMPACTION TESTS
BOEING REALTY		
PROJECT 5936-98	DATE DEC. 1997	

LEGEND

AC	AIR CONDITION
ASPH.	ASPHALT CONCRETE
BP	BACK FLOW PREVENTOR
CATV	CABLE TELEVISION
CB	CATCH BASIN
C.F	CURB FACE
C.L.F	CHAIN LINK FENCE
CO	CLEAN OUT
DI	DRAIN INLET
DMH	DRAIN MAN HOLE
EM	ELECTRICAL METER
FDC	FIRE DEPT. CONNECTION
FH	FIRE HYDRANT
FS	FIRE SERVICE
G	GAS
GM	GAS METER
GP	GUARD POST
ICV	IRRIGATION CONTROL VALVE
P	POST
PB	PULL BOX
PIV	POST INDICATOR VALVE
PP	POWER POLE
S	SIGN
SD	STORM DRAIN
SLPB	STREET LIGHT PULL BOX
SMH	SEWER MAN HOLE
SS	SANITARY SEWER
FM	FORCED MAIN
ST. LT.	STREET LIGHT
T	TELEPHONE
TSPB	TRAFFIC SIGNAL PULL BOX
U.G	UNDERGROUND
W	WATER
WM	WATER METER
WV	WATER VALVE
YD. LT.	YARD LIGHT
	WALL

NO.	DESCRIPTION	BY	DATE	CHK
	REVISIONS			

TAIT & ASSOCIATES INC.
1100 TOWN & COUNTRY ROAD
SUITE 1200,
P.O. Box 4429
Orange, California 92668
(714) 560-8200
(714) 560-8211 FAX

TITLE: AS-BUILT DEMOLITION PLAN

MCDONNELL DOUGLAS REALTY CO.
4060 LAKEWOOD BLVD., 6TH FLOOR
LONG BEACH, CA 90808-1700

PROJECT: HARBOR GATEWAY
HARBOR GATEWAY
LOS ANGELES, CA

DRAWN: R.W.K.
DATE: 10/21/97
CHECKED:
DATE:
REVISION # 1
DATE:
JOB NO: SP3289B

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